CLAIMS

What is claimed is:

1. A method of interacting with a client process on a mobile device connected to a network over a wireless link, the method comprising the steps of:

receiving, in a first method of an application executing on a first platform connected to the network, first data from a state machine in response to a message from the client process; and

returning second data for the client process to the state machine in response to said receiving the first data;

wherein

the state machine executes on a second platform connected to the network,

the second platform is distinct from the mobile device,

the first platform is distinct from the mobile device, and

the state machine manages information about a plurality of messages from the client process.

2. The method of Claim 1, wherein the second platform is the first platform.

3. The method of Claim 1, wherein the second data indicates an item of information based on the information managed by the state machine.

4. The method of Claim 1, wherein:

an object is a data structure having a name, an attribute and an attribute value; and

the second data indicates a page object comprising one or more particular attribute values that are field objects describing graphical elements for display on the mobile device by the client process.

5. The method of Claim 4, wherein the state machine manages the information by storing third data describing the one or more field objects in association with fourth data describing the page object.

6. The method of Claim 5, wherein at least one field object of the one or more field objects indicated by the second data is based on fifth data from the information managed by the state machine, the fifth data describing one or more previous field objects comprising a previous page object.

7. The method of claim 6, wherein the first data from the state machine includes data indicating a unique reference to a previous field object of the one or more previous field objects described by the fifth data in the information managed by the state machine.

8. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and
the field object comprises the second method for generating an extensible markup language (XML) document that describes a graphical element for display on the mobile device by the client process.

9. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and
the field object includes the second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the field object.

10. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and

a field object of the one or more field objects inherits the second method from a bean class having common methods for storing and retrieving attributes and attribute values of instances of the class.

11. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and
a field object of the one or more field objects inherits the second method from a JavaBeans class having standard methods for storing and retrieving attributes and attribute values of instances of the class.

12. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and
the page object inherits the second method from a bean class having common methods for storing and retrieving attributes and attribute values of instances of the class.

13. The method of Claim 4, wherein:
an object may have behavior represented by a second method; and
the page object inherits the second method from a JavaBeans class having standard methods for storing and retrieving attributes and attribute values of instances of the class.

14. The method of Claim 10, wherein the state machine manages the information by invoking the common methods of the bean class for storing and retrieving attributes and attribute values of the field object.

15. The method of Claim 10, wherein the field object inherits from a text field bean having:
a prompt attribute;
a text value attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the text field bean.

16. The method of Claim 10, wherein the field object inherits from a list-of-values bean having:

a prompt attribute and a text value attribute,

a list of selectable values attribute,

a statement attribute for holding a statement that causes a processor to generate the list of selectable values,

a number of list items attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the list-of-values bean.

17. The method of Claim 10, wherein the field object inherits from a list bean having:

a prompt attribute;

a list of values attribute;

a number of list items attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the list bean.

18. The method of Claim 10, wherein the field object inherits from a multi-list bean having:

a prompt attribute;

a number of lists attribute;

a numbers of list items attribute;

a list of values attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the multi-list bean.

19. The method of Claim 10, wherein the field object inherits from a check-box bean having:

a prompt attribute;

a checked attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the check-box bean.

20. The method of Claim 10, wherein the field object inherits from a radio-button bean having:

a prompt attribute;

a group name attribute;

a checked attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the radio-button bean.

21. The method of Claim 10, wherein the field object inherits from a button bean having:

a prompt attribute; and

a second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the button bean.

22. The method of Claim 10, wherein the field object inherits from a header bean having a text value attribute.

23. The method of Claim 10, wherein the field object inherits from a separator bean having a character value attribute.

24. The method of claim 4, wherein the first method of the application executing is a constructor method for the page object.

25. The method of claim 24, wherein the application comprises a plurality of constructor methods for a plurality of corresponding page objects including the page object.

26. A method of interacting with a client process on a mobile device connected to a network over a wireless link, the method comprising the steps of:

receiving at a state machine executing on a first platform connected to the network, a first request associated with the client process for a service from an application;

invoking a first method of the application with first data in response to the first request;

receiving second data for the client process in response to said step of invoking the first method;

sending a first response for the client process based on the second data; and

managing information about a plurality of requests associated with the client process, wherein

the application executes on a second platform connected to the network,

the first platform is distinct from the mobile device, and

the second platform is distinct from the mobile device.

27. The method of Claim 26, wherein the first platform is the second platform.

28. The method of Claim 26, the step of managing the information about the plurality of requests comprising the step of storing third data based at least in part on the second data.

29. The method of Claim 26, wherein the second data indicates an item of information based on the information about the plurality of requests managed by the state machine.

30. The method of Claim 26, wherein:

an object is a data structure having a name, an attribute and an attribute value; and

the second data specifies a page object comprising one or more particular attribute values that are field objects describing graphical elements for display on the mobile device by the client process.

31. The method of Claim 30, the step of managing the information about the plurality of requests comprising the step of storing third data specifying the one or more field objects in association with fourth data specifying the page object.

32. The method of Claim 31, wherein the third data specifying the one or more field objects is stored with an hierarchical child relationship to the fourth data specifying the page object.

33. The method of claim 31, the step of managing the information further comprising generating a unique reference for each field object of the one or more field objects, the unique reference unique among all field objects stored during the step of managing the information about the plurality of requests.

34. The method of claim 33, the step of storing the third data further comprising storing the third data in a database with an index mapping the unique reference to a location in the database of data specifying each field object.

35. The method of claim 33, the step of generating the unique reference for each field object comprising appending a field name of each field object to a page name of the page object, wherein the field name is unique among the one or more field objects of the page object.

36. The method of claim 35, the step of generating the unique reference for each field object further comprising appending an application name of the application to the field name and the page name.

37. The method of claim 35, the step of generating the unique reference for each field object further comprising appending a session name of a communication session between the state machine and the client process to the field name and the page name.

38. The method of Claim 31, wherein at least one field object of the one or more field objects specified by the second data is based on fifth data from the information managed by the state machine, the fifth data describing one or more previous field objects comprising a previous page object.

39. The method of Claim 30, wherein:
an object may have behavior represented by a second method;
the field object comprises the second method for generating an extensible markup language (XML) document that describes a graphical element for display on the mobile device by the client process;
the method further comprises invoking the second method for generating the XML document; and
the first response comprises the XML document.

40. The method of Claim 30, wherein:
an object may have behavior represented by a second method; and
the field object includes the second method for responding to input from a user of the mobile device, the input associated with a graphical element for display on the mobile device by the client process, the graphical element based on the field object.

41. The method of Claim 30, wherein:

an object may have behavior represented by a second method; and

a field object of the one or more field objects inherits the second method from a bean class having common methods for storing and retrieving attributes and attribute values of instances of the class

42. The method of Claim 30, wherein:

an object may have behavior represented by a second method; and

a field object of the one or more field objects inherits the second method from a JavaBeans class having standard methods for storing and retrieving attributes and attribute values of instances of the class

43. The method of Claim 30, wherein:

an object may have behavior represented by a second method; and

the page object inherits the second method from a bean class having common methods for storing and retrieving attributes and attribute values of instances of the class

44. The method of Claim 30, wherein:

an object may have behavior represented by a second method; and

the page object inherits the second method from a JavaBeans class having standard methods for storing and retrieving attributes and attribute values of instances of the class

45. The method of Claim 41, the step of managing information about a plurality of requests associated with the client process further comprising invoking the second method of the common methods of the bean class for storing and retrieving attributes and attribute values of the field object.

46. The method of Claim 30, wherein:

the method further comprises sending a second response for the client process based on a second page object before said step of receiving the first request;

the first request includes data indicating a second attribute value for a second field object for the second page object; and

the step of managing the information about the plurality of requests comprises the step of storing third data indicating the second attribute value for the second field object.

47. The method of claim 30, wherein the first method of the application is a constructor method for generating the page object.

48. The method of claim 47, wherein the application comprises a plurality of constructor methods for a plurality of corresponding page objects including the page object.

49. The method of Claim 26, wherein:

the method further comprises

determining whether the second data indicates a redirect to a different resource on the network; and

if it is determined that the second data indicates the redirect, then

sending a redirect request to the different resource based on the second data, and

receiving a redirect response from the different resource; and

the first response is based on the redirect response.

50. The method of Claim 26, wherein the method further comprises:

determining whether the second data indicates termination of the application; and

if it is determined that the second data indicates termination, then

the first response includes a menu of applications to select for execution.

51. The method of Claim 26, wherein:

an object is a data structure having a name, an attribute, an attribute value and behavior represented by a second method;

the information about the plurality of requests specifies a page object comprising one or more particular attribute values that are field objects describing graphical elements for display on the mobile device by the client process;

the page object is associated with a previous request received before the first request;

the first request indicates a particular field object of the page object; and

the first method invoked is the second method of the particular field object.

52. The method of Claim 51, wherein if the second method of the particular field object indicates a constructor method for a second page object then the second data received specifies the second page object.

53. The method of Claim 26, wherein:

an object is a data structure having a name, an attribute, an attribute value and behavior represented by a second method;

the first data comprises an event object having a user action attribute and a session attribute;

a value of the session attribute indicates a particular data structure for the information about the plurality of requests; and

a value of the user action attribute indicates a key pressed by a user of the mobile device.

54. A computer-readable medium carrying instructions for interacting with a client process on a mobile device connected to a network over a wireless link, the computer-readable medium comprising instructions for causing one or more processors to perform the steps of:

receiving first data in response to a message from the client process from a state machine for managing information about a plurality of messages from the client process; and

returning second data for the client process to the state machine in response to said receiving the first data;

wherein

the state machine executes on a first platform connected to the network, and

the first platform is distinct from the mobile device.

55. A computer-readable medium carrying instructions for interacting with a client process on a mobile device connected to a network over a wireless link, the computer-readable medium comprising instructions for causing one or more processors to perform the steps of:

receiving over the network a first request associated with the client process for a service from an application;

invoking a first method of the application with first data in response to the first request;

receiving second data for the client process from the application in response to said step of invoking the first method;

sending a first response for the client process based on the second data; and

managing information about a plurality of requests associated with the client process, wherein

the one or more processors are not on the mobile device,

the application executes on a first platform connected to the network, and

the first platform is distinct from the mobile device.